

California Type Evaluation Program
Certificate of Approval
One-of-a-Kind Measuring Device

For:

Hydrogen Gas-Measuring Device
Retail Motor Fuel Dispenser
Model: US-Gen I
Capacity: \$9999.99 Total Sale
\$99.99 Maximum Unit Price
99.999 kg Total Mass
Accuracy Class 10.0

Submitted By:

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Standard Features and Options

- Rheonik Type: RHM 04 GET 3/8 inch Coriolis Mass Flow Meter (located outside of dispenser cabinet)
- Rheonik Transmitter Model: RHE 12
- Kraus Global Inc. MICON 500 C Electronic Computing Register
- Kraus Global Ltd Option G Cabinet with Gilbarco Upper Electronics
- Dual Hose Dispenser with Separate H35 (350 Bar) and H70 (700 Bar) Fill Pressures
- OPW/Petrovend Field Site Controller 3000 (FCS 3000 Point-of-Sale)
- Back-Lighted Liquid Crystal Display (LCD) Information Screen with Video Operating Instructions
- Segmented Two-Line LCD Customer Display of Sale Price and Kilograms Dispensed
- Separate Segmented Customer Unit Price Display
- Credit/Debit Card Reader
- Receipt Printer
- Alpha-Numeric Keypad
- Minimum Measured Quantity (MMQ) of 500 Grams

This device was evaluated under the California Type Evaluation Program (CTEP) and was found to comply with the applicable requirements of California Code of Regulations for "Weighing and Measuring Devices." Evaluation results and device characteristics necessary for inspection and use in commerce are on the following pages.



Kristin Macey, Director
Effective Date: January 22, 2018

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Hydrogen Gas-Measuring Device / U.S. – Gen I

Application: For use in dispensing compressed hydrogen as a motor vehicle fuel

Identification: The identification (ID) label is attached to the dispenser upright facing inside.

Sealing: Access to and provisions for sealing are controlled through four components. Three are in the dispenser and one at the measuring element transmitter electronics display. Sealing provisions are stated separately for each component.

Access to the Gilbarco metrological features and functions are controlled through the use of a security switch (located in the upper electronics enclosure behind the locked main options door and display on the H70 hose side), and a tab cover over the switch that allows for a wire security seal to be threaded through a hole in the tab cover and a hole in the tab cover bracket frame; thereby, sealing the switch in place so that it cannot be moved while sealed. The security switch has two positions, "normal/sealed" (switch is positioned to the left) and "calibration/configuration" (switch is positioned to the right). The tab cover is constructed so that it will interfere with the switch by not allowing the cover to be placed over the switch if in the "calibration/configuration" position.

Each side of the dispenser (H 35 and H70) has a Kraus Micon 500 C computing register head housed inside an aluminum sheet metal housing located on the top shelf in the upper electronics area of the cabinet. The register heads are configured and sealed separately. Configuration parameters are accessed by a program switch located on the main board inside each Micon 500 C register head housing. The switch access is sealed by threading a wire security seal through drilled head bolts that attached a cover to the housing. The dispenser H35 or H70 three-line delivery pressure LCD will display "Prog" when the Micon 500 C calibration switch is in programming mode, signifying it is an incorrect switch position for sealing.

The Rheonik RHM 04 measuring element has no calibration or configuration capabilities that require the use of a security seal. The measuring element calibration and configuration menu is accessed through the Rheonik transmitter Model RHE 12 by waiving a magnetic wand over receptors located just below the transmitter kg display inside the glass-faced housing cover. Magnetic interference material is placed inside the transmitter housing glass face cover to disable magnetic access to the transmitter calibration and configuration menu. The glass face cover screws onto the transmitter housing, and sealed by threading wire security seal through drilled holes in tabs on both the housing and the glass face cover. The measuring element and the transmitter are located with the hydrogen production, compression, and storage equipment that is separate from the dispenser.

Operation: Authorization to dispense is customer initiated using the dispenser credit/debit card reader. The customer may proceed to dispense, or choose to view an operating video after the card read authorization to dispense. Flows are dictated by the dispenser in order to keep from overheating the fill tanks.

The non-resettable total values of the mass values dispensed specific to each hose is accessed by using the Manager's Keypad located behind the Customer Interface Module door of the dispenser. The values will display on the face of the dispenser by combining values in the main display window of the total sale and kilogram dispensed, in addition to the price per unit window.

Use the Manager's Keypad and instructions below to display these totals:

1. Check that the "Disable" light on the dispenser is not flashing.
2. Go to the right hand (H70) side of the dispenser.
3. Open the dispenser door. The dispenser will power down.
4. Connect the manager keypad to the Gilbarco board.
5. Close the dispenser door with the Manager's Keypad outside of the door.
6. Wait for the dispenser to completely startup.
7. Press "MASS TOTAL." The kilograms dispensed from side one (H70) is displayed.
8. Press "2." The kilograms dispensed from side two (H35) is displayed.
9. Open the dispenser door and remove the Manager's Keypad.
10. Close the dispenser door.

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Refer to Figures 1 and 2 for total mass example of 23,212.650 total kilograms dispensed from the H70 hose side.



Figure 1



Figure 2

Test Conditions: The emphasis of the evaluation was on device design, performance, markings, sealing, accuracy, repeatability, and permanence. The device was tested gravimetrically. Multiple drafts were drawn using combinations of non-communication partial fills by manually stopping the dispenser, and non-communication full fills by allowing the dispenser to stop automatically at varying flows of 0.4 kg/min up to 1.3 kg/min from the 700 bar hose. Multiple drafts were also drawn from the 350 bar hose under the same conditions as above for non-communication fills at flows from 0.3 kg/min up to 0.8 kg/min. Flows were dictated by the dispenser in order to keep from overheating the fill tanks. The MMQ of 500 grams was also tested. Tests described above were repeated after 12 353 kg. of throughput, and all test results were within acceptance tolerance for accuracy class 10.0.

Evaluated By: N. Ingram (CA)

Type Evaluation Criteria Used: *California Code of Regulations, Title 4, Division 9, Article 1. National Uniformity, Exceptions, and Additions 2017 Edition*

Conclusion: The results of the evaluation and information provided by the manufacturer indicate the device complies with applicable requirements.

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Example of the Device:

